

Claim Listing This listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended) A mutant castor Δ^9 -18:0-ACP desaturase with a substantial increase in activity towards fatty acid substrates with chains containing fewer than 18 carbon atoms having one two or more amino acid substitutions selected from the group consisting of:

- a) Ala or Thr for Met at residue 114 of SEQ ID NO: 1;
- b) Arg for Thr at residue 117 of SEQ ID NO: 1;
- c) Gly or Ala for Leu at residue 118 of SEQ ID NO: 1;
- d) Val or Leu for Pro at residue 179 of SEQ ID NO: 1;
- e) Val or Ser for Thr at residue 181 of SEQ ID NO: 1; and
- f) Leu for Gly at residue 188 of SEQ ID NO: 1.

2. (cancelled)

3. (currently amended) The mutant castor Δ^9 -18:0-ACP desaturase of Claim 1 which has having the amino acid substitutions Arg for Thr at residue 117 of SEQ ID NO: 1 and Leu for Gly at residue 188 of SEQ ID NO: 1.

4. (currently amended) The mutant castor Δ^9 -18:0-ACP desaturase of Claim 1 which contains having each of the following additional amino acid substitutions:

- a) Ala for Met at residue 114 of SEQ ID NO: 1;

- b) ~~Arg for Thr at residue 117 of SEQ ID NO: 1;~~
- eb) Gly for Leu at residue 118 of SEQ ID NO: 1;
- dc) Val for Pro at residue 179 of SEQ ID NO: 1; and
- ed) Val for Thr at residue 181 of SEQ ID NO: 1; and
- f) ~~Leu for Gly at residue 188 of SEQ ID NO: 1.~~

5. (currently amended) The mutant castor Δ^9 -18:0-ACP desaturase of Claim 1 3
~~which contains having~~ each of the following additional amino acid substitutions:

- a) Thr for Met at residue 114 of SEQ ID NO: 1;
- b) ~~Arg for Thr at residue 117 of SEQ ID NO: 1;~~
- eb) Ala for Leu at residue 118 of SEQ ID NO: 1;
- dc) Leu for Pro at residue 179 of SEQ ID NO: 1; and
- ed) Ser for Thr at residue 181 of SEQ ID NO: 1; and
- f) ~~Leu for Gly at residue 188 of SEQ ID NO: 1.~~

Claims 6-29 (withdrawn).

/ 30. (cancelled)

/ 31. (cancelled)

Claims 32-59 (withdrawn)

60. (new) The mutant castor Δ^9 -18:0-ACP desaturase of Claim 1 having the
amino acid substitutions Arg for Thr at residue 117 of SEQ ID NO: 1 and Leu for Pro at
residue 179 of SEQ ID NO: 1.